



PATENT ABSTRACTS OF JAPAN

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(71) Applicant: SANKYO ALUM IND CO LTD
SHIMIZU CORP(72) Inventor: KYOTANI KOZO
KENJO TATSUYA

(54) EXTERIOR WALL STRUCTURAL BODY

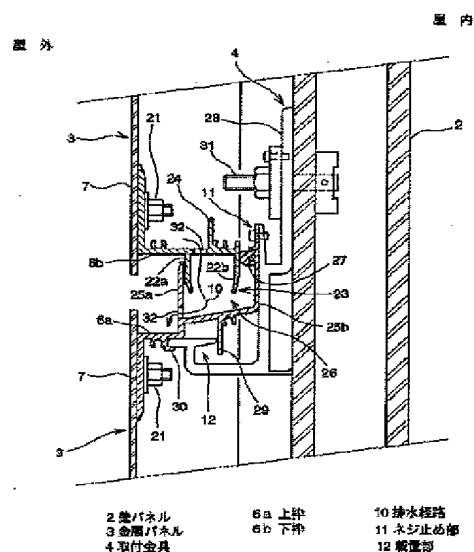
upper frame 6a from below.

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(57) Abstract:

PROBLEM TO BE SOLVED: To provide an exterior wall structural body facilitating the execution with a simple structure and eliminating the seal maintenance.

SOLUTION: The exterior wall structural body includes wall panels 2 mounted to a skeleton 1 and metal panels 3 mounted to an outdoor side of the wall panel, both wall panels 2 hold a sealing compound 5 and are fitted and connected to each other to form a cut-off wall, projected stripes 8 are alternately projected from one frame to the opposite other frame to form a labyrinth 9 between both frames of the adjoining metal panels 3 and 3, the air is introduced from the labyrinth 9 to a space formed between the metal panel 3 and wall panel 2, and the metal panel 3 has a drain route 10 for rain-water in an indoor side. A metal fixture 4 has a screw clamp section 11 for fixing a metal panel upper frame 6a and a mounting section 12 for supporting the central part in the indoor and outdoor direction of the



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the outer wall structure of the building of ***** which used wall panels, such as a cement extrusion-molding panel, and a metal panel.

[0002]

[Description of the Prior Art] The outer wall structure which attaches the wall panel by a cement extrusion-molding panel etc. in the main part of a building, attaches a metal panel in the outdoors side further, and changes is common knowledge as it is indicated by JP,4-350233,A. Such outer wall structure does not have the wall surface of concrete in a main part in many cases, and makes a wall panel a cut off wall. Considering as that storm sewage does not permeate if possible from the clearance between the metal panels which it is desirable to make it storm sewage not poured on a wall panel in order to maintain the seal nature for a long period of time, although it is naturally necessary to carry out the seal of the clearance between wall panels, and are attached outside, and the structure which does not wet a wall panel even if it permeates, but can be drained promptly is called for. Although it is troublesome, the seal of the clearance between metal panels may be carried out.

[0003] Although the clearance between adjacent metal panels is carrying out opening and storm sewage permeates merciless from there, the thing of the aforementioned official report installs ** on the wall panel which is equivalent to the background of opening, and has structure which collects and drains storm sewage by this.

[0004]

[Problem(s) to be Solved by the Invention] Although ** is installed how much in case of this structure, if driving rain falls, storm sewage will permeate easily exceeding **, because opening of between adjacent metal panels and metal panels is carried out. Therefore, the seal of a wall panel had to be repaired every several years. First of all, apart from a metal panel, it is quite troublesome to attach ** beforehand on a wall panel. If it furthermore says, the structure of attaching a metal panel in a wall panel is also very complicated, many big holes are vacated for a wall panel, or the long pin is inserted in, and pre-processing to a wall panel is very complicated so that it may understand, even if it sees drawing 8 of this official report.

[0005] This invention is accomplished in view of such the actual condition, and it aims at structure being easy, and construction being also easy, and a seal maintenance offering the outer wall structure of needlessness.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned technical problem, the outer wall structure by invention according to claim 1 It has the wall panel attached in a main part, and the metal panel attached in the outdoors side of a wall panel. Among the frames of the metal panel which a sealant is fastened, fitting connection is carried out, and wall panels form the cut off wall, and adjoins The open air is introduced into the space which protrudes a protruding line alternately toward the frame of another side which faces from one frame, has formed the maze, and is formed between a metal panel and a wall panel from the maze, and a metal panel is characterized by having the wastewater path of storm sewage in the indoor side. The ALC panel, the RC panels, calcium silicate panels including a cement extrusion-molding panel, etc. can be used for a wall panel.

[0007] In addition to the above-mentioned configuration, the outer wall structure by invention

according to claim 2 has fitted in mutually, and, as for the cope box and drag flask of a metal panel which adjoin up and down, is characterized by having formed the maze among the door posts of the metal panel which adjoins right and left.

[0008] Moreover, the outer wall structure by invention according to claim 3 It has the wall panel attached in a main part, and the metal panel attached in the outdoors side of a wall panel with the fixing metal fixed to the wall panel. Fasten a sealant, fitting connection is carried out and wall panels form the cut off wall. The cope box and drag flask of a metal panel which adjoin up and down had fitted in mutually, prepared the clearance among the door posts of the metal panel which adjoins right and left, and the open air is introduced. And it is characterized by for a metal panel having the wastewater path of storm sewage in an indoor side, and having the installation section which supports the screw stop section which fixes a cope box to fixing metal, and the center section of the direction of the outside of indoor of a cope box from a lower part.

[0009]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained based on a drawing. It is a cross-sectional view in X-X and Y-Y. [in / drawing 3 / a front view and / drawing 2 / drawing of longitudinal section of the outer wall structure, and / drawing 1 / in the A section detail drawing of drawing 1 , drawing 4 , and respectively drawing 5 / drawing 2] This outer wall structure sticks a wall panel 2 on the main part 1 of a building at the whole surface, and attaches the metal panel 3 through fixing metal 4 further on it.

[0010] It is what was formed by the cement extrusion-molding panel, and a configuration is a longwise rectangle, and a wall panel 2 is extracted to a lengthwise direction, forms many holes 13, and has attained lightweight-ization. A protruding line 14 is formed in one side, the fitting slot 15 is formed in the side face on either side at another side, and a wall panel 2 inserts a protruding line 14 in the fitting slot 15 of the next wall panel 2, and as shown in drawing 5 , where a sealant 5 is put between the clearance between both, it is connected one after another. As shown in drawing 1 , the installation to the main part 1 of a wall panel 2 welds an angle type 17 to the steel beam 16 of a main part 1, sandwiches rubber packing 18 between the cutting edge of an angle type 17, and a wall panel 2, by the clip metallic ornaments 19 fixed to the field by the side of indoor [of a wall panel 2] with the bolt, as an angle type 17 is pressed down, it stops it, and is fixed to the steel beam 16.

[0011] The metal panel 3 forms four frame material by the extruded shape of aluminum, i.e., cope box 6a, drag flask 6b, left frame 6c, and 6d of right frames in a square framework using a screw 20, attaches the aluminum panel 7 in the front face of a framework through the bolt nut 21, and is constituted. One metal panel 3 is a horizontally long rectangle, and as shown in drawing 2 , ranging over the wall-panel 2 top of two or more sheets, the mutual metal panel 3 is attached in the condition of having connected up and down. Fixing metal 4 is distributed and installed in the location of eye **** of the upper and lower sides of metal panel 3 comrades.

[0012] Drawing 3 showed the beginning structure to the wall panel 2 of the metal panel 3. The suspension walls 22a and 22b of two sheets are caudad turned to drag flask 6b of the metal panel 3, and it protrudes on a vertical, and the intussusceptum 23 is formed, from the pars intermedia of the suspension walls 22a and 22b of two sheets, it rises towards the upper part and the wall 24 is protruded. The starting walls 25a and 25b of two sheets are formed in an indoor side, the fit-in section 26 is formed in cope box 6a of the metal panel 3, and it has a gasket 27 in a front-face side at starting wall 25b by the side of indoor, and has the screw stop section 11 to fixing metal 4 in rising wood. Drag flask 6b of the metal panel 3 inserts the intussusceptum 23 in the fit-in section 26 of metal panel cope box 6a located caudad, has only prevented it in the deflection to order, and is not being fixed.

[0013] Fixing metal 4 is further equipped with the installation section 12 which *****s ahead further continuously caudad and supports the center section of the direction of the outside of indoor of metal panel cope box 6a from a lower part with the faying surface 28 and the screw stop section 11 of the metal panel 3 caudad jutted out towards the front to a wall panel 2. After carrying with the guide wall 29 guided to the inferior-surface-of-tongue side of metal panel cope box 6a so that it may be easy to put on the installation section 12, it has the stopper pawl 30 positioned so that it may not separate from the installation section 12. In addition, the sign 31 in drawing is anchor bolt, and can be inserted and stopped from the outdoors side of a wall panel 2. Special processing is [that what is

necessary is just to vacate the hole for anchor bolt 31 for a wall panel 2] unnecessary in case fixing metal 4 is attached in a wall panel 2.

[0014] Moreover, in metal panel drag flask 6b, it has a weep hole 32 to the part which connects the starting wall 24 and outdoors side suspension wall 22a, and has a weep hole 32 at the root of outdoors side starting wall 25a also at metal panel cope box 6a, and the wastewater path 10 in which these pass to the exterior of the metal panel 3 from the metal panel 3 interior is constituted.

[0015] In left frame 6c of the metal panel 3, and 6d of right frames, as shown in drawing 4 , a protruding line 8 is protruded alternately and the maze 9 is constituted. The air which introduces the open air from this clearance and is stored in the space of Hazama of a wall panel 2 and the metal panel 3 is maintained in the same atmospheric pressure as the open air at the same time it intercepts opening of the clearance between metal panel 3 comrades which adjoin right and left and prevents permeation of storm sewage by this. Moreover, the right-and-left door posts 6c and 6d which protruded the protruding line 8 have also been the wastewater paths 10 which pour storm sewage caudad.

[0016] As a construction procedure of this outer wall structure, a wall panel 2 is first stuck on the whole surface on main part 1 front face, subsequently to a position, fixing metal 4 is installed on a wall panel 2, and the metal panel 3 is attached in order toward the upper stage from the lower stage.

[0017] This invention is not limited to the above-mentioned operation gestalt. For example, although the wall panel 2 was [the metal panel 3] horizontal **** in ***** with the operation gestalt, contrary to this, a wall panel 2 may be [the metal panel 3] ***** in horizontal ****. The ALC panel, the RC panel, a calcium silicate panel, etc. can be used for a wall panel 2 besides a cement extrusion-molding panel. Moreover, the configuration is not limited that a maze 9 should just be the configuration which can prevent permeation of storm sewage by making an open air installation path into a nonlinear path.

[0018]

[Effect of the Invention] since the outer wall structure according to claim 1 constituted the maze between the frames of adjoining metal panels -- a labyrinthine protruding line -- opening between metal panels -- intercepting -- permeation of storm sewage -- protecting -- in addition -- and since the space of Hazama of a wall panel and a metal panel is maintained by introducing the open air from the clearance between labyrinthine by the same atmospheric pressure as the open air, the suction of storm sewage which comes from change of an atmospheric pressure has also been prevented.

Moreover, even if storm sewage infiltrated into the interior of a metal panel, it will be drained more promptly than the wastewater path prepared in the frame of a metal panel. Therefore, storm sewage hardly reaches even a wall panel and the seal maintenance of a wall panel becomes unnecessary.

[0019] Furthermore, according to invention according to claim 2, installation of a metal panel can be simplified, maintaining the above-mentioned advantage.

[0020] Moreover, since according to invention according to claim 3 a metal panel is fixed only in the part of a cope box, it can aim at compaction of construction time amount since a drag flask is only inserted in the cope box of the already fixed metal panel which adjoins caudad, and it has the installation section of a metal panel cope box in fixing metal, attachment of a metal panel can be performed comfortably and enlargement of a metal panel also becomes possible.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] It has the wall panel attached in a main part, and the metal panel attached in the outdoors side of a wall panel. Among the frames of the metal panel which a sealant is fastened, fitting connection is carried out, and wall panels form the cut off wall, and adjoins It is the outer wall structure which has introduced the open air into the space which protrudes a protruding line alternately toward the frame of another side which faces from one frame, has formed the maze, and is formed between a metal panel and a wall panel from the maze, and is characterized by the metal panel having the wastewater path of storm sewage in the indoor side.

[Claim 2] The cope box and drag flask of a metal panel which adjoin up and down are the outer wall structure according to claim 1 which has formed the maze among the door posts of the metal panel which has fitted in mutually and adjoins right and left.

[Claim 3] It has the wall panel attached in a main part, and the metal panel attached in the outdoors side of a wall panel with the fixing metal fixed to the wall panel. Fasten a sealant, fitting connection is carried out and wall panels form the cut off wall. The cope box and drag flask of a metal panel which adjoin up and down had fitted in mutually, prepared the clearance among the door posts of the metal panel which adjoins right and left, and the open air is introduced. And a metal panel is the outer wall structure characterized by having the wastewater path of storm sewage in an indoor side, and having the installation section which supports the screw stop section which fixes a cope box to fixing metal, and the center section of the direction of the outside of indoor of a cope box from a lower part.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the outer wall structure of the building of *****
which used wall panels, such as a cement extrusion-molding panel, and a metal panel.

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PRIOR ART

[Description of the Prior Art] The outer wall structure which attaches the wall panel by a cement extrusion-molding panel etc. in the main part of a building, attaches a metal panel in the outdoors side further, and changes is common knowledge as it is indicated by JP,4-350233,A. Such outer wall structure does not have the wall surface of concrete in a main part in many cases, and makes a wall panel a cut off wall. Considering as that storm sewage does not permeate if possible from the clearance between the metal panels which it is desirable to make it storm sewage not poured on a wall panel in order to maintain the seal nature for a long period of time, although it is naturally necessary to carry out the seal of the clearance between wall panels, and are attached outside, and the structure which does not wet a wall panel even if it permeates, but can be drained promptly is called for. Although it is troublesome, the seal of the clearance between metal panels may be carried out. [0003] Although the clearance between adjacent metal panels is carrying out opening and storm sewage permeates merciless from there, the thing of the aforementioned official report installs ** on the wall panel which is equivalent to the background of opening, and has structure which collects and drains storm sewage by this.

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EFFECT OF THE INVENTION

[Effect of the Invention] since the outer wall structure according to claim 1 constituted the maze between the frames of adjoining metal panels -- a labyrinthine protruding line -- opening between metal panels -- intercepting -- permeation of storm sewage -- protecting -- in addition -- and since the space between a wall panel and a metal panel is maintained by introducing the open air from the clearance between labyrinthine by the same atmospheric pressure as the open air, the suction of storm sewage which comes from change of an atmospheric pressure has also been prevented. Moreover, even if storm sewage infiltrated into the interior of a metal panel, it will be drained more promptly than the wastewater path prepared in the frame of a metal panel. Therefore, storm sewage hardly reaches even a wall panel and the seal maintenance of a wall panel becomes unnecessary. [0019] Furthermore, according to invention according to claim 2, installation of a metal panel can be simplified, maintaining the above-mentioned advantage. [0020] Moreover, since according to invention according to claim 3 a metal panel is fixed only in the part of a cope box, it can aim at compaction of construction time amount since a drag flask is only inserted in the cope box of the already fixed metal panel which adjoins caudad, and it has the installation section of a metal panel cope box in fixing metal, attachment of a metal panel can be performed comfortably and enlargement of a metal panel also becomes possible.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Although ** is installed how much in case of this structure, if driving rain falls, storm sewage will permeate easily exceeding **, because opening of between adjacent metal panels and metal panels is carried out. Therefore, the seal of a wall panel had to be repaired every several years. First of all, apart from a metal panel, it is quite troublesome to attach ** beforehand on a wall panel. If it furthermore says, the structure of attaching a metal panel in a wall panel is also very complicated, many big holes are vacated for a wall panel, or the long pin is inserted in, and pre-processing to a wall panel is very complicated so that it may understand, even if it sees drawing 8 of this official report.

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MEANS

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[0007] In addition to the above-mentioned configuration, the outer wall structure by invention according to claim 2 has fitted in mutually, and, as for the cope box and drag flask of a metal panel which adjoin up and down, is characterized by having formed the maze among the door posts of the metal panel which adjoins right and left.

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[0009]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained based on a drawing. It is a cross-sectional view in X-X and Y-Y. [in / drawing 3 / a front view and / drawing 2 / drawing of longitudinal section of the outer wall structure, and / drawing 1 / in the A section detail drawing of drawing 1 , drawing 4 , and respectively drawing 5 / drawing 2] This outer wall structure sticks a wall panel 2 on the main part 1 of a building at the whole surface, and attaches the metal panel 3 through fixing metal 4 further on it.

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[0011] The metal panel 3 forms four frame material by the extruded shape of aluminum, i.e., cope box 6a, drag flask 6b, left frame 6c, and 6d of right frames in a square framework using a screw 20, attaches the aluminum panel 7 in the front face of a framework through the bolt nut 21, and is

constituted. One metal panel 3 is a horizontally long rectangle, and as shown in drawing 2, ranging over the wall-panel 2 top of two or more sheets, the mutual metal panel 3 is attached in the condition of having connected up and down. Fixing metal 4 is distributed and installed in the location of eye **** of the upper and lower sides of metal panel 3 comrades.

[0012] Drawing 3 showed the beginning structure to the wall panel 2 of the metal panel 3. The suspension walls 22a and 22b of two sheets are caudad turned to drag flask 6b of the metal panel 3, and it protrudes on a vertical, and the intussusceptum 23 is formed, from the pars intermedia of the suspension walls 22a and 22b of two sheets, it rises towards the upper part and the wall 24 is protruded. The starting walls 25a and 25b of two sheets are formed in an indoor side, the fit-in section 26 is formed in cope box 6a of the metal panel 3, and it has a gasket 27 in a front-face side at starting wall 25b by the side of indoor, and has the screw stop section 11 to fixing metal 4 in rising wood. Drag flask 6b of the metal panel 3 inserts the intussusceptum 23 in the fit-in section 26 of metal panel cope box 6a located caudad, has only prevented it in the deflection to order, and is not being fixed.

[0013] Fixing metal 4 is further equipped with the installation section 12 which *****s ahead further continuously caudad and supports the center section of the direction of the outside of indoor of metal panel cope box 6a from a lower part with the faying surface 28 and the screw stop section 11 of the metal panel 3 caudad jutted out towards the front to a wall panel 2. After carrying with the guide wall 29 guided to the inferior-surface-of-tongue side of metal panel cope box 6a so that it may be easy to put on the installation section 12, it has the stopper pawl 30 positioned so that it may not separate from the installation section 12. In addition, the sign 31 in drawing is anchor bolt, and can be inserted and stopped from the outdoors side of a wall panel 2. Special processing is [that what is necessary is just to vacate the hole for anchor bolt 31 for a wall panel 2] unnecessary in case fixing metal 4 is attached in a wall panel 2.

[0014] Moreover, in metal panel drag flask 6b, it has a weep hole 32 to the part which connects the starting wall 24 and outdoors side suspension wall 22a, and has a weep hole 32 at the root of outdoors side starting wall 25a also at metal panel cope box 6a, and the wastewater path 10 in which these pass to the exterior of the metal panel 3 from the metal panel 3 interior is constituted.

[0015] In left frame 6c of the metal panel 3, and 6d of right frames, as shown in drawing 4, a protruding line 8 is protruded alternately and the maze 9 is constituted. The air which introduces the open air from this clearance and is stored in the space between a wall panel 2 and the metal panel 3 is maintained in the same atmospheric pressure as the open air at the same time it intercepts opening of the clearance between metal panel 3 comrades which adjoin right and left and prevents permeation of storm sewage by this. Moreover, the right-and-left door posts 6c and 6d which protruded the protruding line 8 have also been the wastewater paths 10 which pour storm sewage caudad.

[0016] As a construction procedure of this outer wall structure, a wall panel 2 is first stuck on the whole surface on main part 1 front face, subsequently to a position, fixing metal 4 is installed on a wall panel 2, and the metal panel 3 is attached in order toward the upper stage from the lower stage.

[0017] This invention is not limited to the above-mentioned operation gestalt. For example, although the wall panel 2 was [the metal panel 3] horizontal **** in ***** with the operation gestalt, contrary to this, a wall panel 2 may be [the metal panel 3] ***** in horizontal ****. The ALC panel, the RC panel, a calcium silicate panel, etc. can be used for a wall panel 2 besides a cement extrusion-molding panel. Moreover, the configuration is not limited that a maze 9 should just be the configuration which can prevent permeation of storm sewage by making an open air installation path into a nonlinear path.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section showing the operation gestalt of the outer wall structure by this invention.

[Drawing 2] It is the front view showing the operation gestalt of the outer wall structure by this invention.

[Drawing 3] It is the A section detail drawing in drawing 1 .

[Drawing 4] It is a X-X cross-sectional view in drawing 2 .

[Drawing 5] It is a Y-Y cross-sectional view in drawing 2 .

[Description of Notations]

1 Main Part

2 Wall Panel

3 Metal Panel

4 Fixing Metal

5 Sealant

6a, 6b, 6c, 6d A cope box, a drag flask, a left frame, the right frame (frame)

8 Protruding Line

9 Maze

10 Wastewater Path

11 Screw Stop Section

12 Installation Section

[Translation done.]

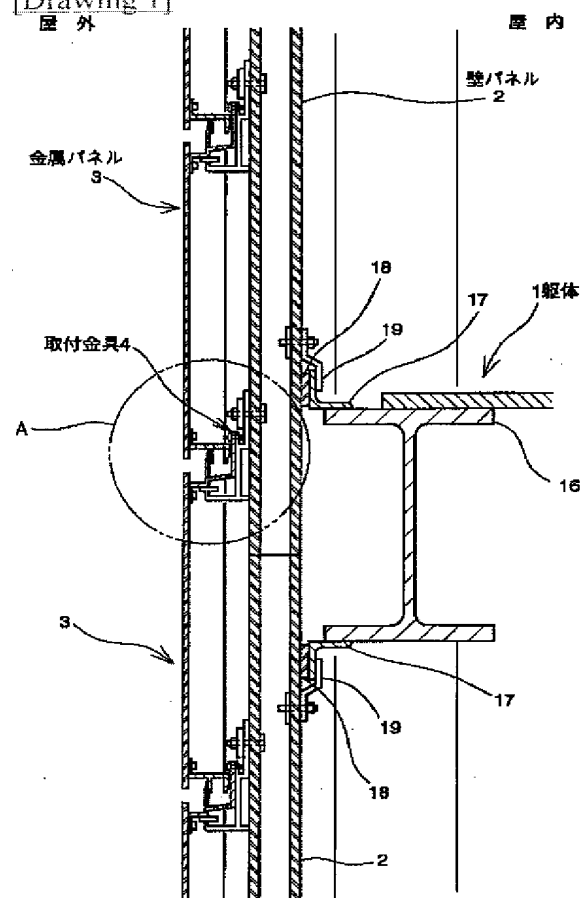
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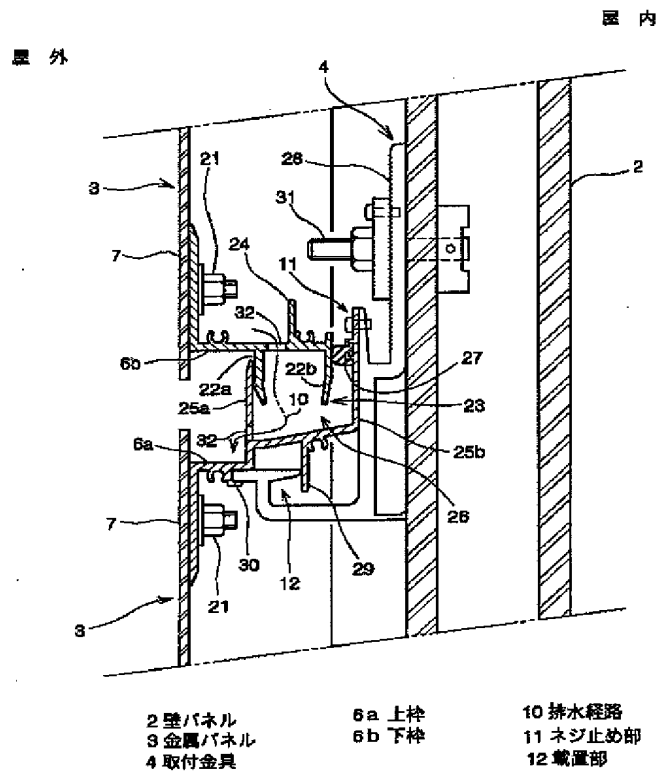
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DRAWINGS

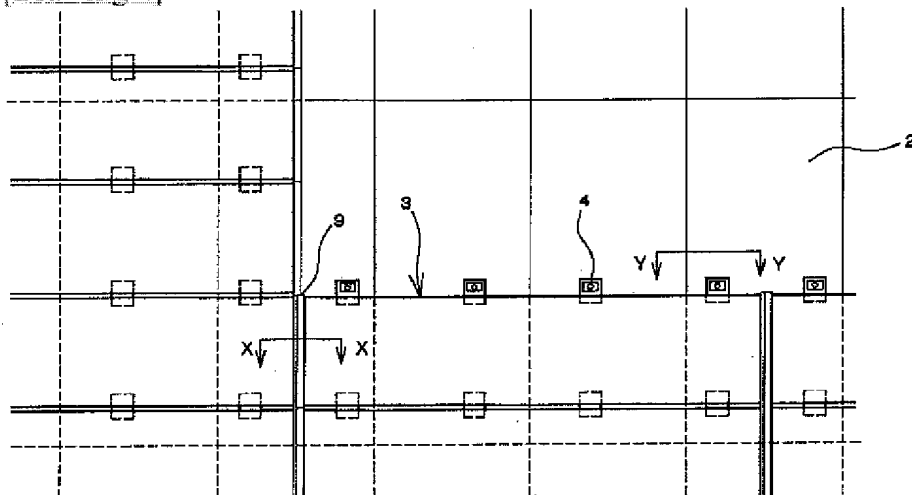
[Drawing 1]



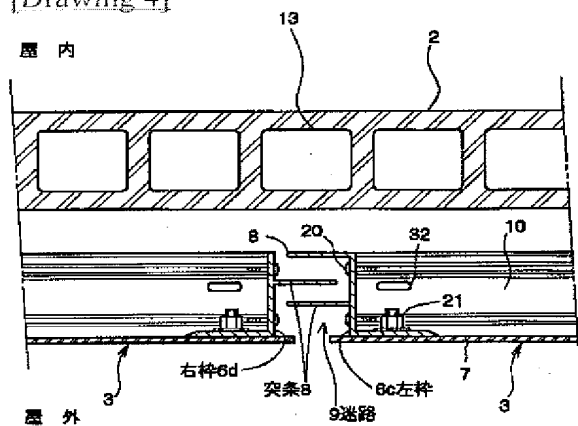
[Drawing 3]



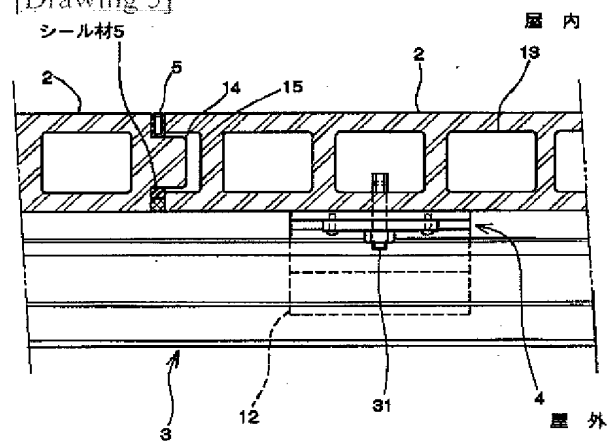
[Drawing 2]



[Drawing 4]



[Drawing 5]



[Translation done.]

(19) 日本国特許庁 (J P)

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(11) 特許出願公開番号
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(P2002-47750A)

(43) 公開日 平成14年2月15日 (2002.2.15)

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	6 0 1		6 4 4 F 2 E 0 0 2
	6 0 4		6 0 1 H 2 E 1 1 0
	6 2 1		6 0 4 C 2 E 1 6 2
			6 2 1 K
審査請求 未請求 請求項の数 3 O L (全 5 頁) 最終頁に続く			

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(71) 出願人 000173560

三協アルミニウム工業株式会社
富山県高岡市早川70番地

(71) 出願人 000002299

清水建設株式会社
東京都港区芝浦一丁目2番3号

(72) 発明者 京谷 幸三

富山県高岡市早川70番地 三協アルミニウ
ム工業株式会社内

(74) 代理人 100090206

弁理士 宮田 信道

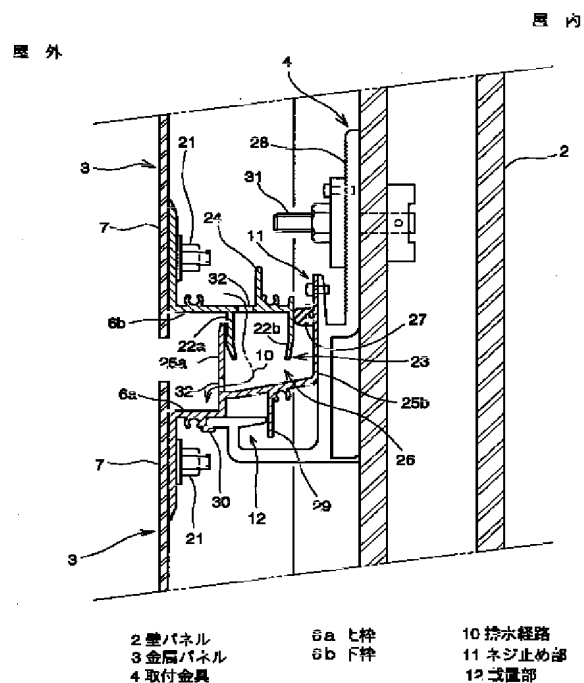
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(54) 【発明の名称】 外壁構造体

(57) 【要約】

【課題】 構造が簡単で施工も容易であって、且つシー
ルメンテナンスが不要の外壁構造体を提供すること。

【解決手段】 躯体1に取り付ける壁パネル2と、壁パ
ネル2の屋外側に取り付ける金属パネル3とを備え、壁
パネル2同士はシーล材5を挟着して嵌合連結されて止
水壁を形成しており、隣接する金属パネル3、3の枠同
士の間には、一方の枠から相対する他方の枠に向かって
突条8を互い違いに突設して迷路9が形成しており、金
属パネル3と壁パネル2との間に形成される空間に迷路
9から外気が導入しており、金属パネル3は屋内側に雨
水の排水経路10を有している。取付金具4には金属パ
ネル上枠6aを固定するネジ止め部11と、上枠6aの
屋内外方向の中央部を下方より支持する載置部12を有
する。



【特許請求の範囲】

【請求項1】 躯体に取り付ける壁パネルと、壁パネルの屋外側に取り付ける金属パネルとを備え、壁パネル同士はシール材を挟着して嵌合連結されて止水壁を形成しており、隣接する金属パネルの枠同士の間には、一方の枠から相対する他方の枠に向かって突条を互い違いに突設して迷路が形成してあり、金属パネルと壁パネルとの間に形成される空間に迷路から外気が導入してあり、金属パネルは屋内側に雨水の排水経路を有していることを特徴とする外壁構造体。

【請求項2】 上下に隣接する金属パネルの上枠と下枠とは互いに嵌合しており、左右に隣接する金属パネルの縦枠同士の間には迷路が形成してある請求項1記載の外壁構造体。

【請求項3】 躯体に取り付ける壁パネルと、壁パネルに固定した取付金具により壁パネルの屋外側に取り付ける金属パネルとを備え、壁パネル同士はシール材を挟着して嵌合連結されて止水壁を形成しており、上下に隣接する金属パネルの上枠と下枠とは互いに嵌合しており、左右に隣接する金属パネルの縦枠同士の間には隙間を設けて外気を導入しており、且つ金属パネルは屋内側に雨水の排水経路を有し、取付金具には上枠を固定するネジ止め部と、上枠の屋内外方向の中央部を下方より支持する載置部を有することを特徴とする外壁構造体。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、セメント押出成形パネル等の壁パネルと、金属パネルとを用いた復層構造のビルの外壁構造体に関するものである。

【0002】

【従来の技術】ビルの躯体にセメント押出成形パネル等による壁パネルを取り付け、さらにその屋外側に金属パネルを取り付けて成る外壁構造は、特開平4-350233にも開示されている通り周知である。こうした外壁構造は、躯体にコンクリートの壁面を持たない場合が多く、壁パネルを止水壁とするものである。壁パネル同士の隙間は当然シールする必要があるが、そのシール性を長期間維持するためには、壁パネルに雨水が掛からないようにするのが好ましく、外面に取り付ける金属パネル同士の隙間からなるべく雨水が浸入しないこと、浸入したとしても壁パネルを濡らさず速やかに排水できる構造とすることが求められる。面倒なことではあるが、金属パネル同士の隙間をシールする場合もある。

【0003】前記の公報のものは、隣り合う金属パネル同士の隙間が開口しており、そこから雨水が容赦なく浸入するが、開口部の裏側に当る壁パネル上に樋を設置して、これにより雨水を集約して排水する構造となっている。

【0004】

【発明が解決しようとする課題】この構造だと、いくら

樋を設置してあるとはいえ、隣り合う金属パネルと金属パネルとの間は開口しているのだから、横殴りの雨が降れば樋を越えて雨水が容易に浸入する。そのため、壁パネルのシールを数年置きぐらいに補修しなければならなかった。そもそも金属パネルとは別に、樋を壁パネル上に予め取り付けるのはかなり面倒である。さらに言うと、金属パネルを壁パネルに取り付ける構造も非常に複雑であり、同公報の図8を見ても分るように、壁パネルに大きな穴をいくつも空けたり、長いピンを挿通したりしており、壁パネルへの前加工が極めて煩雑である。

【0005】本発明はこうした実情に鑑みて成されたものであって、構造が簡単で施工も容易であって、且つシールメンテナンスが不要の外壁構造体を提供することを目的とする。

【0006】

【課題を解決するための手段】上記の課題を達成するために、請求項1記載の発明による外壁構造体は、躯体に取り付ける壁パネルと、壁パネルの屋外側に取り付ける金属パネルとを備え、壁パネル同士はシール材を挟着して嵌合連結されて止水壁を形成しており、隣接する金属パネルの枠同士の間には、一方の枠から相対する他方の枠に向かって突条を互い違いに突設して迷路が形成してあり、金属パネルと壁パネルとの間に形成される空間に迷路から外気が導入してあり、金属パネルは屋内側に雨水の排水経路を有していることを特徴とする。壁パネルには、セメント押出成形パネルを始め、ALCパネルやRCパネル、ケイ酸カルシウムパネル等を用いることができる。

【0007】請求項2記載の発明による外壁構造体は、上記の構成に加えて、上下に隣接する金属パネルの上枠と下枠とは互いに嵌合しており、左右に隣接する金属パネルの縦枠同士の間には迷路が形成してあることを特徴とする。

【0008】また、請求項3記載の発明による外壁構造体は、躯体に取り付ける壁パネルと、壁パネルに固定した取付金具により壁パネルの屋外側に取り付ける金属パネルとを備え、壁パネル同士はシール材を挟着して嵌合連結されて止水壁を形成しており、上下に隣接する金属パネルの上枠と下枠とは互いに嵌合しており、左右に隣接する金属パネルの縦枠同士の間には隙間を設けて外気を導入しており、且つ金属パネルは屋内側に雨水の排水経路を有し、取付金具には上枠を固定するネジ止め部と、上枠の屋内外方向の中央部を下方より支持する載置部を有することを特徴とする。

【0009】

【発明の実施の形態】以下、本発明の実施形態を図面に基づいて説明する。図1が外壁構造体の縦断面図、図2が正面図、図3は図1のA部詳細図、図4と図5はそれぞれ図2におけるX-XとY-Yでの横断面図である。この外壁構造体は、建物の躯体1に壁パネル2を一面に

貼り付け、その上にさらに取付金具4を介して金属パネル3を取り付けたものである。

【0010】壁パネル2は、セメント押出成形パネルにより形成したもので、形状は縦長の長方形で、縦方向に抜き穴13を多数設けて軽量化を図っている。左右の側面には一方に突条14、もう一方に嵌合溝15を形成してあって、壁パネル2は図5に示すように、突条14を隣の壁パネル2の嵌合溝15に嵌め込み、両者の隙間にシール材5を挟み込んだ状態で次々と連結してある。壁パネル2の躯体1への取り付けは、図1に示すように、躯体1の鋼製梁16にアングル17を溶接し、アングル17の刃と壁パネル2の間にゴムパッキン18を挟み、壁パネル2の屋内側の面にボルトで固定したクリップ金具19にてアングル17を押さえ付けるようにして係止させて、鋼製梁16に固定してある。

【0011】金属パネル3は、アルミの押出し型材による四本の枠材、すなわち上枠6a、下枠6b、左枠6c、右枠6dを、ビス20を用いて四角い枠組に形成し、枠組の前面にアルミパネル7をボルト・ナット21を介して取り付け構成されている。一枚の金属パネル3は横に長い長方形で、図2に示すように、複数枚の壁パネル2上に跨がり、且つ互いの金属パネル3は上下に連結した状態で取り付けられる。取付金具4は、金属パネル3同士の上下の境い目の位置に分散して設置してある。

【0012】金属パネル3の壁パネル2への取付き構造を示したのが図3である。金属パネル3の下枠6bには二枚の垂下壁22a、22bを下方に向けて鉛直に突設して嵌入部23を形成してあり、二枚の垂下壁22a、22bの中間部からは、上方に向けて立上げ壁24を突設してある。金属パネル3の上枠6aには、屋内側に二枚の立上げ壁25a、25bを設けて嵌装部26を設けてあり、屋内側の立上げ壁25bには前面側にはガスケット27を有し、上縁部に取付金具4に対してのネジ止め部11を有する。金属パネル3の下枠6bは、嵌入部23を、下方に位置する金属パネル上枠6aの嵌装部26に嵌め込んで前後への振れを防いであるだけで、固定されていない。

【0013】取付金具4には、壁パネル2への密着面28と、その下方に前方に向けて張り出した金属パネル3のネジ止め部11と、さらにその下方に連続していつそう前方に張り出し、金属パネル上枠6aの屋内外方向の中央部を下方より支持する載置部12を備える。金属パネル上枠6aの下面側には、載置部12に載せ易いようにガイドするガイド壁29と、載せた後は載置部12から外れないように位置決めするストッパー爪30を有する。なお図中の符号31はアンカーボルトであって、壁パネル2の屋外側から挿入、係止できるものである。取付金具4を壁パネル2に取り付ける際には、アンカーボルト31用の穴を壁パネル2に空けるだけで良く、特殊

な加工は必要ない。

【0014】また金属パネル下枠6bには、立上げ壁24と屋外側垂下壁22aとを繋ぐ部位に水抜き孔32を有し、金属パネル上枠6aにも屋外側立上げ壁25aの根元に水抜き孔32を有し、これらが金属パネル3内部から金属パネル3の外部に通ずる排水経路10を構成している。

【0015】金属パネル3の左枠6cと右枠6dには、図4に示すように、突条8を互い違いに突設して迷路9を構成してある。これによって、左右に隣接する金属パネル3同士の隙間の開口を遮断して雨水の浸入を阻止すると同時に、同隙間から外気を導入して壁パネル2と金属パネル3の間の空間に蓄えられる空気を外気と同じ気圧に維持している。また、突条8を突設した左右縦枠6c、6dは、雨水を下方に流す排水経路10にもなっている。

【0016】この外壁構造体の施工手順としては、まず躯体1表面に一面に壁パネル2を貼り、次いで壁パネル2上に取付金具4を所定の位置に設置し、金属パネル3を下段から上段に向かって順に取り付けていく。

【0017】本発明は上記実施形態に限定されるものではない。例えば実施形態では、壁パネル2が縦貼りで金属パネル3が横貼りであったが、これとは逆に壁パネル2が横貼りで金属パネル3が縦貼りであっても良い。壁パネル2には、セメント押出成形パネル以外にもALCパネルやRCパネル、ケイ酸カルシウムパネル等を使用することができる。また、迷路9は、外気導入経路を非直線経路として雨水の浸入を防止できる形状であれば良く、その形状は限定されない。

【0018】

【発明の効果】請求項1記載の外壁構造体は、隣接する金属パネル同士の枠と枠の間に迷路を構成したので、迷路の突条が金属パネル間の開口を遮断して雨水の浸入を防ぎ、なお且つ壁パネルと金属パネルの間の空間が、迷路の隙間から外気を導入することで外気と同じ気圧に維持されるので、気圧の変化からくる雨水の吸い込みも防いでいる。また、仮に金属パネル内部に雨水が浸入したとしても、金属パネルの枠に設けた排水経路より速やかに排水される。したがって壁パネルにまで雨水が到達することがほとんどなく、壁パネルのシールメンテナンスが不要となる。

【0019】さらに請求項2記載の発明によれば、上記の利点を維持しながら金属パネルの取り付けを簡略化できる。

【0020】また、請求項3記載の発明によれば、金属パネルの固定を上枠の部分のみで行い、下枠はすでに固定してある下方に隣接する金属パネルの上枠に嵌め込むだけなので施工時間の短縮を図ることができ、また、取付金具には金属パネル上枠の載置部を有するので、金属パネルの取付作業を楽に行うことができ、金属パネルの

大型化も可能となる。

【図面の簡単な説明】

【図1】 本発明による外壁構造体の実施形態を示す縦断面図である。

【図2】 本発明による外壁構造体の実施形態を示す正面図である。

【図3】 図1におけるA部詳細図である。

【図4】 図2におけるX-X横断面図である。

【図5】 図2におけるY-Y横断面図である。

【符号の説明】

1 躯体

2 壁パネル

3 金属パネル

4 取付金具

5 シール材

6 a, 6 b, 6 c, 6 d 上枠、下枠、左枠、右枠
(枠)

8 突条

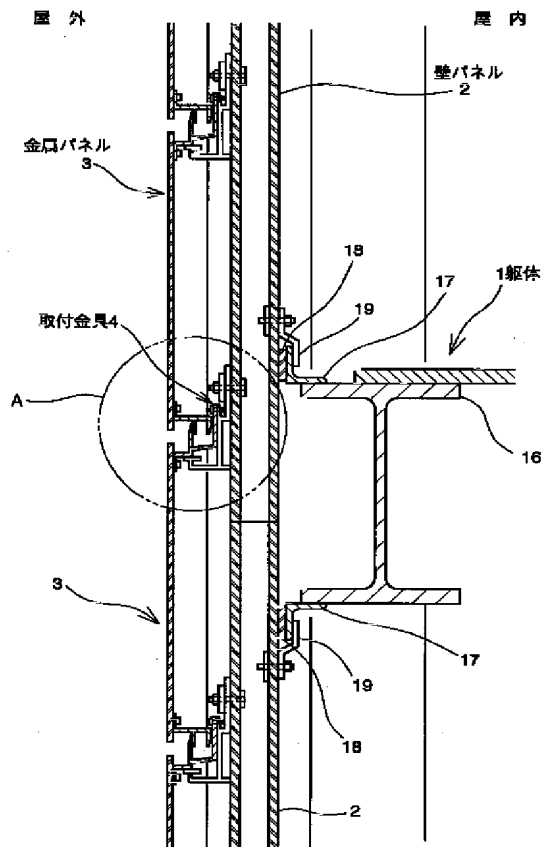
9 迷路

10 排水経路

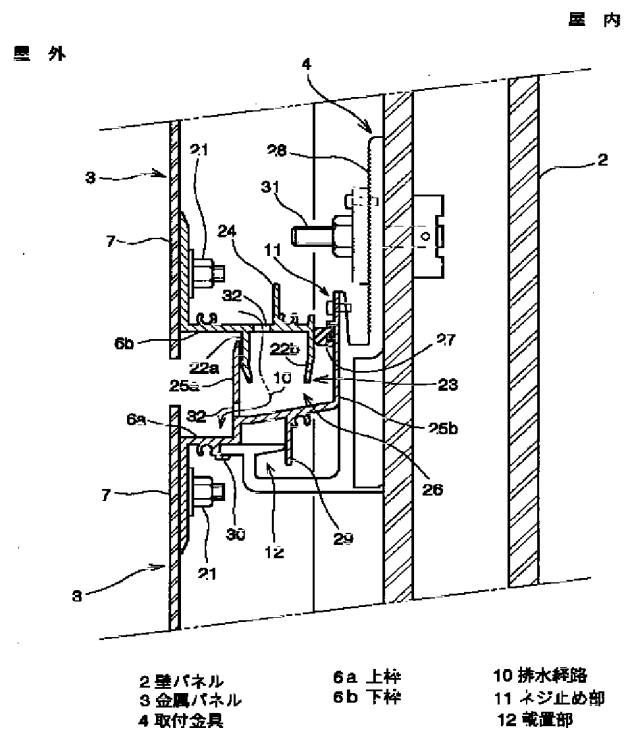
11 ネジ止め部

12 載置部

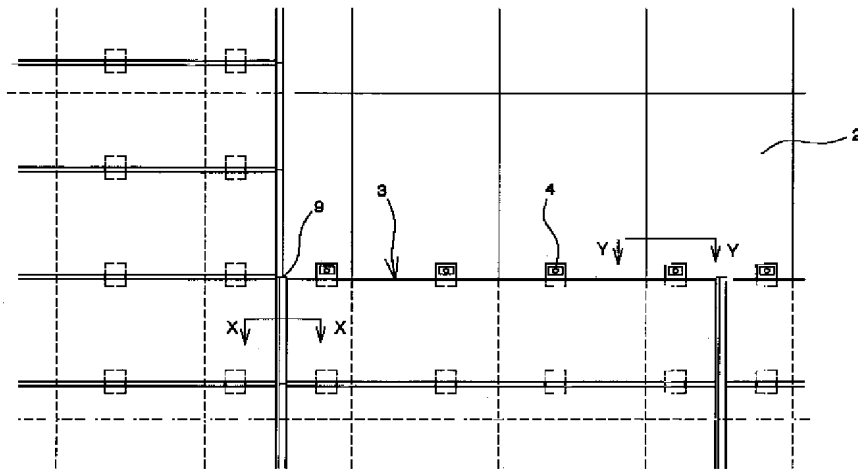
【図1】



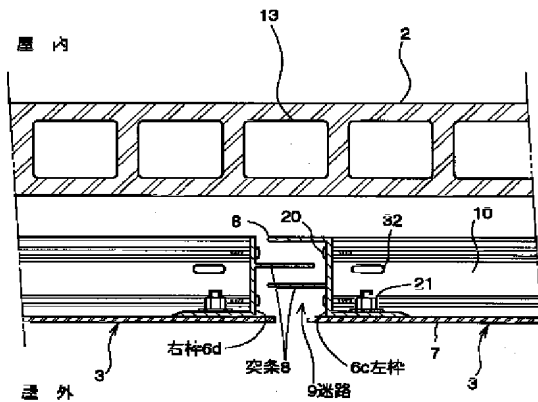
【図3】



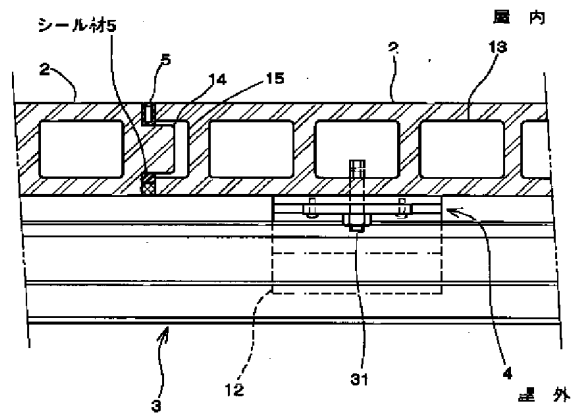
【図2】



【図4】



【図5】



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(72)発明者 見城 辰哉
東京都港区芝浦1丁目2番3号 清水建設
株式会社内

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